THE SPECIES OF THE GENUS LEPYRUS GERM. (COLEOPTERA-CURCULIONIDÆ) IN NORTH AMERICA

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This holarctic genus is represented in the more northern parts of North America by a number of well-marked species as well as by several recognizable subspecies. Because of the great variability of these as well as insufficient series in the hands of previous workers, much confusion has arisen as regards their status, to which I have also unfortunately contributed.[1] During recent years I have assembled a good series of these which, with the aid of considerable loaned material especially a series collected by Mr. Owen Bryant of Banff, in various parts of Alberta, Canada, and another collected this past summer by Mr. Ralph E. Barrett in the Yukon Territory of Canada and Alaska, has enabled me to make a more accurate survey. Interpreting these in the light of their physical characters as well as their geographical distribution and presumed geological history, I find that they may be placed in three fairly well-marked groups centering around *palustris* Scopoli, *gemellus* Kirby and *nordenskiöldi* Faust. *Lepyrus capucinus* Schall., I do not believe is represented in North America. I have seen nothing which at all agrees with the European specimens and consider that Hamilton [2] and others were decidedly wrong in their interpretations. As regards another European species, *Lepyrus palustris* Scopoli, the case is different. Here I agree with Hamilton, Leng and others and disagree with Casey. My Wisconsin specimens of *geminatus* Say cannot be distinguished from French specimens of *palustris* Scopoli, though certain German specimens of the latter are slightly divergent. The specimens of *Lepyrus* from Nome, Alaska, and the Seward Peninsula generally, which I [1] formerly erroneously placed as *palustris* Scopoli, I now consider to be *mordenskiöldi* Faust.[3]

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1 Coleoptera from the Pribilof Islands, Alaska, by Edwin C. Van Dyke, Proc. Calif. Acad. Sci., 4th Ser., vol. XI, No. 14 (November 2, 1921), p. 166.

2 Lepyrus, by John Hamilton, Can. Entom., Vol. XXVIII (1896), p. 125; and Lepyrus alternans and capucinus, etc., Can. Entom., Vol. XXVII (1896), pp. 184-185.

3 Bidrag till Tschuktsch-halfons Insectfauna, Coleoptera och Hemiptera, insamlade under Vega-Expeditionen vid Halföns Norra och östra Kust, 1878-1879, of John Sahlberg; Vega-Expeditions vortenskapliga iakttagelser, Vol. IV (1887), pp. 1-42.

This species was described by J. Faust from eight specimens secured by the Nordenskiöld Expedition from Pitlekaj, northeast Siberia, but a short distance from Behring Strait. Our specimens from the opposite side of the strait agree absolutely with the description. This insect is also very closely related to the forms described by Casey [4] as *Lepyrus canadensis* and *Lepyrus alternans,* and to another undescribed form from farther north in Alaska, all of which I consider as nothing more than subspecies of that. The following table and notes will give my ideas as to the standing of the various forms known from North America.

Synoptic Table

1. Punctures of elytral striæ prominent, irregular as to size, depth and spacing; elytra rather distinctly compressed near apex and apices somewhat produced..... 2

—. Punctures of elytral striæ small or poorly defined, quite regular and uniform as to size and depth; elytra evenly rounded near apex, shallowly compressed if at all and apices not noticeably produced..... 5

2. Odd elytral intervals not more noticeably elevated than even intervals; general surface of elytra finely granular though granules not conspicuous because of the scaly covering..... 3

—. Odd elytral intervals more noticeably elevated than even intervals, especially posteriorly; general surface of elytra rather coarsely granular, the granules quite evident and the strial punctures very coarse and irregularly spaced..... 4

3. Base of elytra evidently less than twice as wide as base of prothorax.....*palustris* Scopoli

—. Base of elytra almost twice as wide as base of prothorax..... .....*palustris* subsp. *pinguis* Casey

4. Patches of white scales, except for the submedian and subapical spots, not particularly evident.....*oregonus* Casey

—. Patches of white scales scattered here and there over the entire surface of elytra.....*oregonus* subsp. *tesselatus* n. subsp.

5. Strial punctures of elytra always evident; odd intervals, but little if at all more elevated than even intervals..... 6

—. Strial punctures of elytra almost obliterated; odd intervals naked or almost so, and more prominently elevated than even intervals..... 9

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[4] Coleopterological Notices, VI, by Thomas L. Casey, Anns. N. Y. Acad. Sci., Vol. VIII (1895), pp. 435-838.

6. Rather stocky; prothorax distinctly broader than long; elytra at base about 1 mm. broader than prothorax, clothed with brown, somewhat silky, hair-like scales, often with irregular patches of white scales; the first and second funicular segments never twice as long as broad.....*nordenskiöldi* Faust

—. More elongate; prothorax almost as long as broad; elytra at base about 1.5 mm. broader than prothorax, clothed with brown or gray scale-like hairs, the second funicular segment about twice as long as broad..... 7

7. Rather robust forms; elytra distinctly more than one-half as broad as long, scales brown or grayish brown with median and subapical patches of white scales generally quite conspicuous.....*nordenskiöldi* subsp. *canadensis* Casey

—. More elongate forms; elytra barely more than one-half as broad as long, vestiture less dense and gray, median and subapical patches of scales not conspicuous..... 8

8. Smaller forms, less than 11 mm. from apex of prothorax to apex of elytra; striæ and strial punctures well defined; elytral intervals of about equal width.....
.....*nordenskiöldi* subsp. *alternans* Casey

—. Larger forms, generally over 11 mm. from apex of prothorax to apex of elytra; strial punctures evident but not conspicuous; odd elytral intervals much narrower than even and often slightly more elevated.....
.....*nordenskiöldi* subsp. *cinereus* n. subsp.

9. Larger and more elongate; even intervals of elytra naked at middle but margined with white scales.....*gemellus* Kirby

—. Shorter and more generally robust; scales of even intervals generally dispersed, overlapping on to odd intervals at sides, and brown or gray in color.....*gemellus* subsp. *errans* Casey

Lepyrus palustris Scopoli. This species, of which *colon* L. and *geminatus* Say are synonyms, ranges in North America from Manitoba and Colorado to the Atlantic and south to Louisiana though it is abundant only in the north.

Lepyrus palustris pinguis Casey. This form I have placed here as a subspecies, though I consider it but a very weak one and believe that with more material we may find that it is not worthy of being given a distinct name. It is limited to Colorado.

Lepyrus oregonus Casey. This species is without doubt the same as *perforatus* Casey and unfortunately has page preference over that, which is better defined. It is of the same ancestry as *palustris,* but is far larger and more coarsely sculptured. It was isolated from the latter by the advance of the ice sheets during the Pleistocene since which time it has diverged greatly. It ranges along the Pacific Coast from northern Oregon to Valdez, Alaska (R. E. Barrett), and eastward as far as northern Idaho.

Lepyrus oregonus tesselatus Van Dyke, new subspecies

This subspecies is in general more robust than the preceding, with the odd elytral intervals hardly more prominent posteriorly than the even; elytra less compressed posteriorly and less prolonged apically; granules of the elytra very prominent, almost as much so as are those of the pronotum; pile gray, not ochraceous and generally rather sparsely distributed, though numerous patches of white scales are scattered here and there over the surface, chiefly between the strial punctures, giving it a spotted appearance.

Holotype (No. 2593, Mus. Calif. Acad. Sci.), and six paratypes collected by Mr. Owen Bryant at **Banff, Alberta,** the holotype, July 13, 1928, the others, May 7 and 24 and June 13, 1928, the holotype and two paratypes in my collection, the others in the collection of Mr. Bryant.

Lepyrus nordenskiöldi Faust. I have four specimens from Nome and Teller, Alaska, which agree perfectly with the description of this species. Because of this and the fact that the type locality of this is only a short distance to the east of Alaska, I consider that they must be the same. Faust compares it with *nebulosus* Móts. of which I have specimens from north China. It is undoubtedly closely related to this and may prove to be but an arctic derivative of the same. It belongs to a complex with many forms in northeastern Asia and northwestern America. My specimens are rather short and robust with the vestiture a light brown and quite dense, the oblique white stripes of the prothorax and the median and postapical

elytral spots quite conspicuous. There are also irregular white markings at the sides and near the apex, well shown in two of the specimens.

Lepyrus nordenskiöldi canadensis Casey. Mr. Owen Bryant has submitted to me a series of thirty-six specimens of what is without doubt this subspecies. They are from Banff, Edmonton, Calgary and other places in Alberta, Canada. Besides these, I have a specimen of the same from Saskatchewan. One of the Pribilof Island specimens also resembles these as well as the remains of a specimen which I found on Unalaska, one of the Aleutian Islands. As designated in the description, this subspecies is rather robust, with a cordate elytra, and has the pubescence of a brown color. As compared with the preceding it is larger, with the elytra proportionally broader, the vestiture less dense and with a tendency to be vittate as a result of the scales of the intervals being alternately of a different shade of color. The series of specimens shows quite a good deal of variation as to size, outline, markings, and color of pile. In most the four white elytral spots are small yet conspicuous, but in others they are illy defined or lacking and in some the vestiture is gray, showing a gradation into the subspecies *cinereus*.

Lepyrus nordenskiöldi alternans Casey. This subspecies is close to the following as regards shape and vestiture but is smaller, has the elytral striæ and punctures well impressed and the intervals all flat and of about equal width. In perfect specimens the pile is quite gray though rather sparse. It is recorded from Labrador and exists as a relict on the White Mountains of New Hampshire and probably also on the higher mountains of northern New York, for I have a specimen labeled N. Y.

Lepyrus nordenskiöldi cinereus Van Dyke, new subspecies

This subspecies is, like *canadensis,* a rather large and robust one, but it is in general more elongate and narrower, with the prothorax almost as long as broad, the sides posteriorly quite parallel, the elytra more elliptical, the odd intervals with a tendency to be more elevated than the even ones and distinctly

granular, the vestiture always gray, not dense, and on the elytra inclined to be more evident on the even intervals, giving them a vittate appearance; the scales are also longer and more hair-like than they are in *canadensis*. In most specimens the odd intervals are almost naked, giving the specimens a close resemblance to *gemellus* Kirby, to which they are undoubtedly somewhat related. In fact, *cinereus* might be classed as a transitional form from *canadensis* to *gemellus*.

Holotype (No. 2594, Mus. Calif. Acad. Sci.), and six designated paratypes from a series of twenty-two specimens in my collection collected by J. August Kusche at **Rampart, Alaska,** May and June 1916, and Dawson, Yukon Territory, Canada, June 1916; and one specimen from Fort Yukon, Alaska, collected by M. F. Blasse. Mr. R. E. Barrett has also submitted a series of over twenty-two specimens from Forty Mile, Yukon Territory, Canada, taken June 17, 1928, from willows. These specimens are slightly shorter and proportionately broader than are those from farther north. Several specimens from St. Paul Island, Pribilof Islands, Alaska, are also quite close to these. It is a phase that is quite characteristic of the upper Yukon Valley.

Lepyrus gemellus Kirby. This well known and distinct species is fairly common on willows about Rampart and Fort Yukon, Alaska. I have a large series from these localities and Mr. Barrett took numerous specimens this last summer from near Dawson. It apparently ranges throughout much of the northern Yukon Valley as well as to the eastward into the Hudson Bay region.

Lepyrus gemellus errans Casey. This insect, I cannot consider as anything more than a subspecies of the preceding, with the body less elongate and the pile more generally dispersed. The depressed, even intervals seem to be broader than in *gemellus,* but that is more because the striæ which define them are less distinctly impressed. In my specimen taken by myself on Longs Peak, Colorado, close to 11,000 feet in altitude, the pile is gray as in *gemellus*. In the type from New Mexico the scales of the elytra were stated to be pale yellowish.